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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Atsushi Ono

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22511

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EXAMINER

MALKOWSKI, KENNETH J

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/820,628

Applicant(s)

ONO ET AL.

Examiner

Kenneth J. Malkowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,13 and 15 is/are rejected.
- 7) ☐ Claim(s) 9-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/8/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                            |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/18/06</u> | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

1. Claim 14 is allowed. The following is an examiner's statement of reasons for allowance:

#### ***Reason for Allowance***

2. With respect to claim 14, the prior art does not fairly teach the limitation of a pattern generating unit for testing an electronic device used with a waveform adjusting unit to adjust said test signal containing a test head for contacting said electronic device with a judging unit for judging electronic device in response to said test signal further wherein a variable setting unit sets a photoelectric conversion circuit to generate a predetermined test signal; further wherein the photoelectric conversion circuit comprises a variable current supply to set photoelectric conversion by adding or subtracting current to indicate the magnitude of current received with all other limitations disclosed in independent claims 14.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 1-2, 5 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,737,111 to Mori et al.

With respect to claims 1, 2 and 15 Mori discloses a data transmission apparatus for performing data communication based on optical transmission, comprising: a transmitting unit for converting and sending electric communication data, which is to be transmitted, into optical communication data (column 1 lines 59-65 (optical data transmission between computers)); a photoelectric conversion circuit for receiving said optical communication data and converting said received optical communication data into said electric communication data (column 1 lines 5-10 (optical receiving apparatus for receiving an optical signal and converting the received signal to an electrical signal)); and a variable setting unit for setting said photoelectric conversion circuit to generate predetermined electric communication data in response to a level of predetermined optical communication data (column 4 lines 14-24 (input optical signal is converted to an electrical signal, detecting a quantity of electricity, and subtracting a reproduced offset current quantity from the current quantity output from the light-receiving device)) wherein said photoelectric conversion circuit (Figures 4-11) comprises; a light receiving unit for generating a current based on said received optical communication data (1, PD in all Figures 4-11); and a comparator for comparing a current value, which indicates magnitude of said current generated by said light receiving unit with a reference current (column 4 lines 15-18 (an offset detecting circuit for detecting a quantity of electricity indicative of an offset current quantity which corresponds to a zero level of the optical signal within the current quantity output form the light receiving device)) and generating

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said electric communication data (the result of level comparison and current manipulations at stages 2 and 3 respectively is an electric output at preamplifier 4, Figure 1); and said variable setting unit comprises: a variable current supply for setting said photoelectric conversion circuit by adding a predetermined current value to said reference current or by subtracting a predetermined current from the current, the value of which indicates the magnitude of said current generated by said light receiving unit (Figures 2 and 3A depict the magnitude of the input current (IPD) and also the subtractive current in B as well as the value of which indicates the magnitude of said current generated by said light receiving unit in part C)(column 4 lines 39-41 (current which has been subject to offset compensation is output to preamplifier))(column 6 lines 26-36 (it is possible to add current to and subtract current from the subtractive current)).

With respect to claim 5, Mori discloses a data transmission apparatus as claimed in claim 1, wherein said variable setting unit (column 4 lines 14-24 (input optical signal is converted to an electrical signal, detecting a quantity of electricity, and subtracting a reproduced offset current quantity from the current quantity output from the light-receiving device))(Figures 4-11) sets said photoelectric conversion circuit based on a transmission delay time of said optical communication data and electric communication data between said corresponding transmitting unit and photoelectric conversion circuit. On page 5 paragraph 59 of applicants' published specification, applicant states that having a variable current supply in the receiving unit is sufficient to "reduce skew ("deviation of delay time in transmitting unit") between channels and the comparator can detect H and L logics with high precision." Because of this, the variable setting unit as

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disclosed by Mori therefore inherently includes the ability to compensate for a transmission delay time. Additionally, a delay time amounts to an erroneous fluctuation of current, which the invention as disclosed by Mori is designed to correct (columns 7-8 lines 63-67 and 1-17)(Figures 2 A-C and 3 A-C)). Furthermore, the fact that a variable current supply in the receiving unit is sufficient to compensate for a delay time skew is further evidenced by the fact that no additional components were disclosed other than said variable current supply in order to compensate for said delay time skew.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,737,111 to Mori et al.

With respect to claim 4, Mori does not specifically disclose the data transmission apparatus as claimed in claim 1 further comprising: a plurality of said transmitting units; a plurality of optical waveguides for propagating pieces of said optical communication data sent from said transmitting units respectively; and a plurality of said photoelectric conversion circuits corresponding to said transmitting units respectively, a plurality of variable setting units corresponding to said plurality of photoelectric conversion circuits for setting respective photoelectric conversion circuit to generate predetermined electric

communication data in response to an input level of said received optical communication data.

However, claim 4 merely recites the data transmission apparatus as claimed in claim 1 in duplicate form. Mori et al. discloses the claimed invention except for said duplicate form, with the exception of an optical waveguide. However, optical waveguides are extremely well known and critical to the art and are very clearly obvious to implement in an optical receiving apparatus as taught by Mori. The motivation for doing so would have been to protect the light transmission signal from external effects such as ambient light or a physical object blocking the transmission path. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of transmitting units, optical waveguides, and a plurality of photoelectric conversion units. Since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Furthermore, applicant states that using the data transmission apparatus as disclosed in Figures 1-3 would be obvious to implement using other parallel data transmission apparatuses and that the same effect would be achieved.

With respect to claims 6-8, Mori discloses a data transmission apparatus as claimed in claim 5, wherein said variable setting unit which can set said photoelectric conversion circuit further based on attenuation of said optical communication data, the electro-optic efficiency of said corresponding transmitting unit, and the photoelectric conversion efficiency of said corresponding photoelectric conversion circuit because

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each of these factors cause a fluctuation in received currents, which is the purpose of the invention as disclosed by Mori, to set current fluctuations in data at the receiver to their intended zero and one levels (columns 7-8 lines 63-67 and 1-17)(Figures 2 A-C and 3 A-C). Furthermore, applicant states that characteristics such as attenuation of said optical communication data with regard to said corresponding optical waveguide, the electro-optic efficiency of said corresponding transmitting unit, and the photoelectric conversion efficiency of said corresponding photoelectric conversion circuit all cause a fluctuation in current and that current subtraction from a variable current supply such as the one taught by Mori [(column 4 lines 14-24 (input optical signal is converted to an electrical signal, detecting a quantity of electricity, and subtracting a reproduced offset current quantity from the current quantity output from the light-receiving device))(Figures 2 and 3A depict the magnitude of the input current (IPD) and also the subtractive current in B as well as the value of which indicates the magnitude of said current generated by said light receiving unit in part C)] is sufficient to adjust for such a fluctuation in current (applicants published application, pages 4-5 paragraph 58). However, Mori fails to specifically disclose at least one optical waveguide. However, optical waveguides are extremely well known and critical to the art and are very clearly obvious to implement in an optical receiving apparatus as taught by Mori. The motivation for implementing an optical waveguide would have been to protect the light transmission signal from external effects such as ambient light or a physical object blocking the transmission path.



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5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,737,111 to Mori et al. in view of U.S. Patent 5,526,164 to Link et al.

With respect to claims 13, Mori discloses a data transmission apparatus as claimed in one of claims 1-2 and 4-10, wherein said transmitting unit comprises: a laser diode for generating said optical communication data based on said electric communication data (this is inherent in an optical transmission system as disclosed by Mori (column 1 lines 59-65 (optical data transmission between computers))); However, Mori fails to disclose a bias current supply for supplying a bias current larger than a laser oscillation threshold current of said laser diode to said laser diode. Link, from the same field of endeavor discloses an optical transmission system comprising a laser diode (title) wherein the transmission system ensures that the bias current supply for supplying a bias current larger than a laser oscillation threshold current of said laser diode to said laser diode (column 1 lines 40-52)(column 2 lines 39-44). Therefore, it would have been obvious to one of ordinary skill in the art to implement the transmitter as taught by Link. The motivation for doing so would have been to avoid distortions of the light signal of the laser diode (Link: column 1 lines 45-48).

***Allowable Subject Matter***

5. Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

6. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to data transmission/ photoelectric conversion and testing apparatuses in general:

U.S. Patent No. 6,583,671 is cited to show an optical receiver with extended dynamic range through current manipulation

U.S. Patent No. 6,396,614 is cited to show an optical receiver

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Malkowski whose telephone number is (571) 272-5505. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KJM 7/31/06

  
KENNETH VANDERPUYE  
SUPERVISORY PATENT EXAMINER